REMARKS

Applicant wishes to thank the Examiner for considering the present application. In the Office Action mailed May 8, 2002, claims 1-20 are pending in the application. Claims 21-32, supported by the original specification, have been added by this amendment. Applicant respectfully requests the Examiner for reconsideration.

Claims 1, 4, 6, and 11 have the changes proposed by the Examiner. The applicant has adopted these changes and therefore these claims are now believed to be in condition for allowance. The changes made to the claims herein are not narrowing amendments.

The specification is objected to for failing to provide proper antecedent basis for the claimed subject matter. Applicant has conformed the specification, namely the second paragraph on page 13, by amending the specification to include the description of the reconfigurable receiver as recited in original claim 6. No new matter has been added by this insertion.

Claim 13 has had its dependency changed and therefore antecedent basis is now believed to be provided.

Claims 1-3 and 7-9 stand rejected under 35 USC §103(a) as being unpatentable over *Montpetit* (6,366,761) in view of *Rockwell* (6,327,063). Applicant respectfully traverses.

Claim 1 is directed to a satellite constellation that has a plurality of satellites. The plurality of satellites has a first grouping of satellites that are interconnected into a network. Each of the satellites has a reconfigurable optical transmitter and a reconfigurable optical receiver. As the satellites move relative to the earth, the satellite configuration may be redefined into a second subset of satellites that have at least

different satellite than the previous subset. In operation, this configuration will be reconfigured several times as the relative positions of the satellites change relative to the earth.

The *Montpetit* reference is directed to a priority-based bandwidth allocation system and bandwidth-on-demand in a low earth orbit satellite data communication network. This system is substantially different than that alleged by the Examiner. The Examiner alleges that the *Montpetit* reference includes a satellite constellation that has a first subset of satellites and a second subset of satellites configured to communicate. Applicant respectfully disagrees. Applicant has reviewed the *Montpetit* reference and has found no teaching or suggestion of the reconfigurability of the first plurality of satellites into a first subset then into a second subset having at least one of the first subset. The applicant has been directed to Fig. 2 by the Examiner. The applicant has reviewed the description of Fig. 2 and has found that only one network configuration is described. This is not surprising since the *Montpetit* reference "does not disclose a satellite having a reconfigurable optical transmitter and a reconfigurable optical receiver for sending and receiving data streams and for optical inter-satellite link" as pointed to by the Examiner on page 4 of the Office Action. Because the satellites are not reconfigurable, no providing of a first subset and a second subset can be manifested by the *Montpetit* reference.

The *Rockwell* reference is cited for showing reconfigurability of an optical transmitter and optical receiver. The *Rockwell* reference is directed to a reconfigurable laser communication terminal. However, no teaching or suggestion is provided in the *Rockwell* reference for using the reconfigurable communications terminal to form different groups or subsets of satellites. The *Rockwell* reference merely describes a network that may use such a device to change the communication frequencies between

the satellites. No teaching or suggestion is found for reconfiguring a plurality of satellites into a first subset and a second subset.

Therefore, because no teaching or suggestion is found in either reference for forming a first subset from a first plurality of satellites and a second subset from the plurality of satellites, in reconfiguring the satellites to communicate within a subset, applicant respectfully requests the Examiner for reconsideration of this rejection. Likewise, claims 2, 3, 7, 8, and 9 are also believed to be allowable for the same reasons described above with respect to claim 1.

Claim 4 stands rejected under 35 USC §103(a) as being patentable over *Montpetit* in view of *Rockwell* and in further view of *Wade* (6,243,513). Applicant respectfully traverses.

Claim 4 is directed to a reconfigurable optical transmitter comprising an array of diodes. The *Wade* reference describes a wave division multiplexing/demultiplexing device using diffractive optic lenses. Although an array of diodes is illustrated in *Wade*, the combination of *Montpetit* and *Rockwell* do not teach or suggest the present invention as described above. *Wade* does not teach or suggest the use of such a device for space-based applications. Applicant therefore requests the Examiner for reconsideration of this rejection as well.

Claims 5 and 10 stand rejected under 35 USC §103(a) as being unpatentable over *Montpetit* in view of *Rockwell* in further view of *Kintis* (5,661,582). Applicant respectfully traverses. Claims 5 and 10 are further limitations of claim 1. Namely, claim 5 recites "wherein said optical transmitter is tunable to generate a plurality of wavelengths." Claim 10 is directed to a satellite constellation "wherein said subset comprises seven satellites using three optical carriers." The optical transmitter of *Kintis* can provide several wavelengths. Also, the *Kintis* reference can provide three

optical carriers. Seven satellites are, however, not specifically described. Claims 5 and 10 are further limitations of claim 1. *Rockwell* and *Montpetit* have the deficiencies with respect to claim 1 described above. Therefore, claims 5 and 10 are also believed to be allowable for the same reasons set forth above.

Claims 11-13 and 16-20 stand rejected under 35 USC §103 as being unpatentable over *Montpetit* in view of *Kintis*. Applicant respectfully traverses.

Claim 11 describes a global communication system that has a plurality of satellites spaced about the earth. A first set of satellites form a local network over the land mass. The first subset has a plurality of optical carriers that are used for intercommunication within the subset. A second plurality of optical carriers are assigned for communicating with other satellites outside of the first subset. The *Montpetit* reference as pointed out by the Examiner "does not disclose a subset of satellites having a first plurality of optical carriers assigned thereto for intercommunication and a second plurality of optical carriers assigned for communicating with other satellites outside of the subset." The *Kintis* reference teaches that multiple wavelengths may be applied to a single optical fiber. However, the *Kintis* reference does not describe two different types of wavelengths; one for communication within a subset and one for communication outside of the subset. Furthermore, the *Montpetit* reference has the drawbacks described above. Namely, the *Montpetit* reference does not describe forming a subset from a first group of satellites. The *Montpetit* reference has all of the satellites grouped into the same network as shown in Fig. 2 of the *Montpetit* reference.

Because the combination recited in claim 11 is not taught or suggested by the *Montpetit* reference, applicant respectfully requests the Examiner for a reconsideration.

Likewise, claims 12, 13, and 16 are a further limitation of claim 11. Therefore, applicant respectfully believes that these claims are also allowable for the same reasons set forth above.

Applicant also respectfully traverses with respect to claim 17. In claim 17, a method claim is provided that groups a first subset of the satellites into a first local area network. A plurality of routes are formed between the satellites and the first local area network while an optical carrier for each route is assigned.

First, *Montpetit* does not form a subset of satellites from a plurality of satellites. This deficiency has been described above. The *Kintis* reference is then cited for assigning an optical carrier for each route. Although the *Kintis* reference describes that "each optical fiber may also have a unique wavelength to minimize interferometric ringing", this teaching is provided for within the satellite in the *Kintis* reference rather than "between the satellites in the first local area network." Thus, both the *Kintis* reference and the *Montpetit* reference do not teach assigning an optical carrier for each route between satellites in a first local area network formed from a greater plurality of satellites. Applicant therefore requests the Examiner for reconsideration of this rejection as well. Likewise, claims 18, 19, and 20 are also believes to be allowable for the same reasons set forth above.

Claim 14 stands rejected under 35 USC §103(a) as being unpatentable over *Montpetit* in view of *Kintis* in further view of *Rockwell*. Applicant respectfully traverses. Applicant respectfully submits that the combination of *Montpetit* and *Kintis* applied to claim 11 above has several deficiencies. Because claim 14 is a further limitation of claim 11, applicant respectfully requests the Examiner for reconsideration.

Claim 15 stands rejected under *Montpetit* and *Kintis* in further view of *Rockwell* and *Wade*. Applicant respectfully traverses.

Claim 15 is a further limitation of claim 11. Claim 11 has several deficiencies noted above in the combination of *Montpetit* and *Kintis*. Applicant therefore requests the Examiner for a reconsideration of this rejection as well.

Because the combinations of references provided by the Examiner has several deficiencies in that they do not teach or suggest the combinations of the claims, applicant respectfully requests the Examiner for a reconsideration of each of the rejections above.

Should the Examiner have any questions or comments, the Examiner is respectfully requested to contact the undersigned attorney.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

Page 13, replace second paragraph lines 9– 18 as follows:

--It is preferred that only a minimum amount of optical carriers be used in a network. This allows the reconfigurable transmitters and receivers of each satellite to have reduced complexity and thus less weight and cost. It should be noted that the reconfigurable receiver may be any one of a Fabry-Perot filter, a wavelength division multiplexer, and a fiber grating-based optical switch. If seven satellites are used, only three optical carriers for communications between the local area network satellites need to be used for communicating in one direction. This number should be doubled for a low-interference, full duplex traffic.--

In the Claims:

1. (Amended) A satellite constellation comprising:

a plurality of satellites, each of said satellites having an RF ground link for communicating with a ground station and an optical link for communication with at least one of the plurality of satellites;

each of said satellites having a reconfigurable optical transmitter for sending and receiving data streams, each reconfigurable optical transmitter having [a first] an optical carrier associated therewith and a reconfigurable optical receiver;

said plurality of satellites arranged to have a first subset of satellites, said first subset of satellites are [satellite] configured to communicate therebetween;

said plurality of satellites arranged to have a second subset of satellites having at least one different satellite than that of said first subset, said second subset of satellites are configured to communicate therebetween.

4. (Amended) A satellite constellation as recited in claim 1 wherein said reconfigurable optical transmitter comprises an array of laser diodes.

6. (Amended) A satellite constellation as recited in claim 1 wherein said reconfigurable optical receiver is one from the group consisting of a [Fabri-Perot] Fabry-Perot filter, a wavelength division multiplexer, and a fiber grating-based optical switch.

11. (Amended) A global communications system comprising:

a plurality of satellites spaced about the earth;

a first subset of said plurality of satellites forming a local area network over a landmass, said first subset having a first plurality of optical carriers assigned thereto for intercommunication;

said first subset having a second plurality of optical carriers assigned thereto for communicating with other satellites outside of said first subset.

13. (Amended) A global communications system as recited in claim [11] 12 wherein said communications table has a plurality of paths [for each path] for communication between said satellites of said first subset.

21. (New) A method as recited in claim 17 wherein assigning an optical carrier for each route comprises assigning a first set of optical carriers for communication within the first local area network and a second set of optical carriers for communication with other satellites outside of said first local area network.

22. (New) A satellite constellation comprising:

a plurality of satellites, each of said satellites having an RF ground link for communicating with a ground station and an optical link for communication with at least one of the plurality of satellites;

each of said satellites having a reconfigurable optical transmitter for sending and receiving data streams, each reconfigurable optical transmitter having an optical carrier associated therewith and a reconfigurable optical receiver;

said plurality of satellites arranged to have a first subset of satellites, said first subset of satellites are configured to communicate therebetween;

said plurality of satellites arranged to have a second subset of satellites that supercede the first set of satellites, said second subset of satellites having at least

one different satellite than that of said first subset, said second subset of satellites are configured to communicate therebetween.

23. (New) A satellite constellation as recited in claim 22 wherein each of said plurality of satelites comprises a communications table.

24. (New) A satellite constellation as recited in claim 23 wherein said communications table has plurality of routes for communicating between satellites in said first subset.

25. (New) A satellite constellation as recited in claim 22 wherein said reconfigurable optical transmitter comprises an array of laser diodes.

26. (New) A satellite constellation as recited in claim 22 wherein said optical transmitter is tunable to generate a plurality of wavelengths.

27. (New) A satellite constellation as recited in claim 22 wherein said reconfigurable optical receiver is one from the group consisting of a Fabry-Perot filter, a wavelength division multiplexer, and a fiber grating-based optical switch.

28. (New) A global communications system comprising:

a plurality of satellites spaced about the earth;

a first subset of said plurality of satellites forming a first local area network over a landmass, said first subset having a first plurality of optical carriers assigned thereto for intercommunication;

a second subset of said plurality of satellites forming a second local area network over a landmass, said second subset having a second plurality of optical carriers assigned thereto for intercommunication;

said first subset having a third plurality of optical carriers assigned thereto for communicating with said second subset.

29. (New) A global communications system as recited in claim 28 wherein said second subset has a fourth plurality of optical carriers assigned thereto for communicating with said first subset.

30. (New) A method of communicating within a satellite communications system comprising the steps of:

deploying a plurality of satellites;

grouping a first subset of the plurality of satellites into a first local area network;

superceding said first subset by grouping a second subset of the plurality of satellites into a second local area network so that at least one of said first subset is different than said second subset.

31. (New) A method as recited in claim 30 wherein superceding said first subset comprises reconfiguring a reconfigurable optical transmitter for each of the satellites in the second subset.

32. (New) A method as recited in claim 31 wherein reconfiguring a reconfigurable optical transmitter comprises changing a plurality of routes between the satellites in the second local area network relative to the first local area network.